10/784,519

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=> s syndiotactic?(1w)(styrene or vinyl aromatic or polystyrene) and (residual(1w)(vinyl aromatic or styrene))
L1 19 SYNDIOTACTIC?(1W)(STYRENE OR VINYL AROMATIC OR POLYSTYRENE) AND (RESIDUAL(1W)(VINYL AROMATIC OR STYRENE))

=> d l1 1-19 ibib abs

L1 ANSWER 1 OF 19 USPATFULL on STN
ACCESSION NUMBER: 2002:314552 USPATFULL
TITLE: Electrically conductive thermoset composition, method for the preparation thereof, and articles derived therefrom
INVENTOR(S): Yeager, Gary William, Rexford, NY, UNITED STATES
Cavazos, Manuel, West Coxsackie, NY, UNITED STATES
Guo, Hua, Selkirk, NY, UNITED STATES
Merfeld, Glen David, Loudonville, NY, UNITED STATES
Rude, John, Clifton Park, NY, UNITED STATES
Teutsch, Erich Otto, Richmond, MA, UNITED STATES
Zarnoch, Kenneth Paul, Scotia, NY, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002177027	A1	20021128
APPLICATION INFO.:	US 2001-683214	A1	20011203 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 2001-262522P	20010118 (60)
	US 2001-306017P	20010717 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: CANTOR COLBURN, LLP, 55 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT, 06002
NUMBER OF CLAIMS: 46
EXEMPLARY CLAIM: 1
LINE COUNT: 2320
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A conductive thermosetting composition comprises a functionalized poly(arylene ether), an alkenyl aromatic monomer, an acryloyl monomer, and a conductive agent. After curing, the composition exhibits good stiffness, toughness, heat resistance, and conductivity, and it is useful in the fabrication of a variety of conductive components, including the bipolar plates of fuel cells.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 2 OF 19 USPATFULL on STN
ACCESSION NUMBER: 2000:70573 USPATFULL
TITLE: Battery jar material for sealed secondary battery and battery jar for sealed secondary battery using the same
INVENTOR(S): Chino, Shinji, Osaka, Japan
Satoh, Nobuyuki, Tokyo, Japan

Matsukawa, Koji, Osaka, Japan
Okada, Akihiko, Ichihara, Japan
PATENT ASSIGNEE(S): Idemitsu Petrochemical Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6071643		20000606	
	WO 9724771		19970710	
APPLICATION INFO.:	US 1998-91818		19980625	(9)
	WO 1996-JP3855		19961227	
			19980625	PCT 371 date
			19980625	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1995-340205	19951227

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Gupta, Yogendra
ASSISTANT EXAMINER: Ingersoll, Christine
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1,6
LINE COUNT: 1033
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A battery jar material for sealed secondary batteries comprising a resin composition which comprises 50 to 98% by weight of (A) a styrenic polymer having a syndiotactic configuration, 2 to 50% by weight of (B) at least one polymer selected from the group consisting of polyolefins and styrenic elastomers, and 0 to 10% by weight of (C) a polyphenylene ether, or a resin composition which comprises 100 parts by weight of a resin component having the same composition as the above resin composition, 1 to 350 parts by weight of (D) an inorganic filler, and 0 to 5 parts by weight of (E) a polyphenylene ether modified with a polar group; and a battery jar for sealed secondary batteries made of this material. A battery jar material and a battery jar for sealed secondary batteries which show excellent heat resistance, resistance to electrolytes, resistance to oil and grease, electric insulation, mechanical strengths, and moldability and enable decrease in thickness are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 3 OF 19 USPATFULL on STN
ACCESSION NUMBER: 2000:24744 USPATFULL
TITLE: Solid state devolatilization of **syndiotactic vinyl aromatic** polymers with catalyst deactivation
INVENTOR(S): Billovits, Gerald F., Midland, MI, United States
Tipler, Scott A., Midland, MI, United States
PATENT ASSIGNEE(S): The Dow Chemical Company, Midland, MI, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6031070		20000229	
APPLICATION INFO.:	US 1998-16814		19980130	(9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1997-47504P	19970523 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted

PRIMARY EXAMINER: Acquah, Samuel A.
NUMBER OF CLAIMS: 12
EXEMPLARY CLAIM: 1
LINE COUNT: 502
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is an improved solid state polymer devolatilization process which comprises heating a wet feed mixture comprising polymer, residual monomer(s), process solvents and active catalyst residues in the presence of an inert gas, wherein the improvement comprises replacing the inert gas with a catalyst deactivating gas.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 4 OF 19 USPATFULL on STN
ACCESSION NUMBER: 1999:27729 USPATFULL
TITLE: Finishing process for **syndiotactic vinyl aromatic** polymers
INVENTOR(S): Billovits, Gerald F., Midland, MI, United States
Tipler, Scott A., Midland, MI, United States
McCullough, Thomas W., Lake Jackson, TX, United States
PATENT ASSIGNEE(S): The Dow Chemical Company, Midland, MI, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5877271		19990302
APPLICATION INFO.:	US 1998-16815		19980130

	NUMBER	DATE
PRIORITY INFORMATION:	US 1997-44688P	19970418 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Teskin, Fred
NUMBER OF CLAIMS: 12
EXEMPLARY CLAIM: 1
LINE COUNT: 421
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is an improvement in a solid state devolatilization finishing process for a wet feed material of **syndiotactic vinyl aromatic** polymer containing volatiles, including at least one vinyl aromatic monomer, wherein the improvement comprises: rapidly heating the wet feed material, such that the temperature of the wet feed material is increased at a rate of at least 10° C./min., to a temperature between about 150° C. and the melting point temperature of the **syndiotactic vinyl aromatic** polymer, while concurrently removing evolved volatiles.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 5 OF 19 USPATFULL on STN
ACCESSION NUMBER: 96:118490 USPATFULL
TITLE: Image formation method
INVENTOR(S): Katoh, Kazunobu, Kanagawa, Japan
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Kanagawa, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5587276		19961224	
APPLICATION INFO.:	US 1996-590195		19960123	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1995-8094	19950123

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Le, Hoa Van
LEGAL REPRESENTATIVE: Sughrue, Mion, Zinn, Macpeak & Seas
NUMBER OF CLAIMS: 3
EXEMPLARY CLAIM: 1
LINE COUNT: 1865
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method for forming a silver halide photographic image comprising developing a silver halide photographic material with a developing solution containing an ascorbic acid developing agent, substantially free from hydroquinone and having a pH of 8.5 to 11.0, the silver halide photographic material comprising a support formed of a syndiotactic styrenic polymer and a silver halide emulsion layer formed on at least one surface thereof, the emulsion layer or another hydrophilic colloidal layer containing a hydrazine derivative, and the total amount of gelatin of the emulsion layer being 2.5 g/m.sup.2 or less, thereby reducing black spot fog and improving dimensional stability of the photographic material.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 6 OF 19 USPATFULL on STN
ACCESSION NUMBER: 95:112584 USPATFULL
TITLE: Process for produce a readily slidable film
INVENTOR(S): Funaki, Keisuke, Ichihara, Japan
Ohki, Yuichi, Himeji, Japan
Takama, Hideyuki, Tokyo, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5476899		19951219
APPLICATION INFO.:	US 1993-168273		19931215 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1992-991505, filed on 17 Dec 1992, now abandoned which is a continuation of Ser. No. US 1991-684926, filed on 17 Apr 1991, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1989-236896	19890914
	JP 1989-245224	19890922
	JP 1989-251784	19890929
	JP 1989-261952	19891009
	JP 1989-261954	19891009
	JP 1989-269089	19891018

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Michl, Paul R.
ASSISTANT EXAMINER: Guarriello, John J.
LEGAL REPRESENTATIVE: Frishauf, Holtz, Goodman, Langer & Chick
NUMBER OF CLAIMS: 15
EXEMPLARY CLAIM: 1
LINE COUNT: 2427
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A process for the production readily slidable films which are stretched films. The process comprises (a) uniaxially stretching in a machine direction a pre-molded product comprising a composition of a styrene polymer having a high degree of syndiotactic configuration compounded with 0.001 to 1% by weight of inorganic filler particles with an average

particle diameter of 0.01 to 3 μm, or simultaneously, biaxially stretching the premolded product in the machine direction and the transverse direction and (b) subsequently uniaxially restretching the premolded product in the traverse direction or simultaneously, biaxially restretching the premolded product in the machine direction and the transverse to produce a film having a surface roughness Ra of 0.005 to 0.03 μm, and a static friction coefficient μs of 0.3 to 1.0. The readily slidable films have high heat resistance, mechanical strength and electrical insulating properties and are excellent in sliding properties and smoothness.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 7 OF 19 USPATFULL on STN

ACCESSION NUMBER:	94:49022 USPATFULL		
TITLE:	Laminate with a styrenic polymer layer		
INVENTOR(S):	Arai, Yosuke, Himeji, Japan Oki, Yuichi, Himeji, Japan Maemura, Eiji, Himeji, Japan Funaki, Keisuke, Ichihara, Japan		
PATENT ASSIGNEE(S):	Idemitsu Petrochemical Co., Ltd., Tokyo, Japan (non-U.S. corporation)		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5318839		19940607
APPLICATION INFO.:	US 1992-831840		19920206 (7)
	NUMBER		DATE
PRIORITY INFORMATION:	JP 1991-36565		19910207
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Sluby, P. C.		
LEGAL REPRESENTATIVE:	Oblon, Spivak, McClelland, Maier & Neustadt		
NUMBER OF CLAIMS:	16		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	6 Drawing Figure(s); 2 Drawing Page(s)		
LINE COUNT:	584		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB There is disclosed a laminate comprising (a) a layer of a styrenic polymer having a higher degree of syndiotactic configuration and a crystallinity of at least 25%, preferably 35%, (b) a layer of paper and optionally (c) an adhesive layer and (d) a barrier layer. The above laminate is excellent in heat resistance, hydrolytic resistance, tearability, dead foldability and gloss and can find a wide range of effective application.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 8 OF 19 USPATFULL on STN

ACCESSION NUMBER:	94:9455 USPATFULL		
TITLE:	Laminate and self-adhesive tape		
INVENTOR(S):	Arai, Yosuke, Himeji, Japan Oki, Yuichi, Himeji, Japan Maemura, Eiji, Himeji, Japan Funaki, Keisuke, Ichihara, Japan		
PATENT ASSIGNEE(S):	Idemitsu Petrochemical Co., Ltd., Tokyo, Japan (non-U.S. corporation)		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5283117		19940201
APPLICATION INFO.:	US 1992-817366		19920106 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1991-12428	19910110

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Lesmes, George F.
ASSISTANT EXAMINER: Copenheaver, Blaine
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 12
EXEMPLARY CLAIM: 1
LINE COUNT: 565

AB There are disclosed a laminate comprising (a) a biaxially oriented film of a styrenic polymer having a high degree of syndiotactic configuration of 10 to 100 μm in thickness and (b) a rubber-based self-adhesive layer of 5 to m in thickness and a self-adhesive tape comprising the above-mentioned laminate. The above laminate and self-adhesive tape are excellent in transparency, heat resistance, water resistance, moisture resistance, dispenser and hand cuttability, insulating properties and mechanical properties such as elasticity and nerve and can find a wide range of effective application.

L1 ANSWER 9 OF 19 USPATFULL on STN
ACCESSION NUMBER: 93:14463 USPATFULL
TITLE: Photographic film of **syndiotactic styrene** polymer
INVENTOR(S): Funaki, Keisuke, Ichihara, Japan
Ohki, Yuichi, Himeji, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5188930		19930223
APPLICATION INFO.:	US 1991-800762		19911202 (7)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1990-592800, filed on 4 Oct 1990, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1989-269090	19891018

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Brammer, Jack P.
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 13
EXEMPLARY CLAIM: 1
LINE COUNT: 617
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A photographic film which comprises (A) a stretched film of a styrene polymer having a syndiotactic configuration or a composition containing it, wherein thickness is 20 to 500 μm, haze is not more than 3% and moisture expansion coefficient is not more than 1+10.sup.-6 /% RH, and (B) a photosensitive layer, which is light and excellent in mechanical properties, is disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 10 OF 19 USPATFULL on STN
ACCESSION NUMBER: 92:74715 USPATFULL
TITLE: Method of storing food or plant materials by wrapping with a stretched **syndiotactic polystyrene** film

INVENTOR(S): Funaki, Keisuke, Ichihara, Japan
Yamasaki, Komei, Sodegaura, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5145950		19920908
APPLICATION INFO.:	US 1991-651043		19910204 (7)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1989-390298, filed on 7 Aug 1989, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-215096	19880831

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Teskin, Fred
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 15
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 1 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 517
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of wrapping plant materials for storage by wrapping the plant materials with a food wrapping material obtained by stretching a styrene-based polymer film with mainly syndiotactic configuration. The wrapping material is transparent, has gloss and is excellent in physical properties such as gas permeability and heat resistance making it very useful in the method for wrapping material such as vegetables and fruits requiring permeation and diffusion of gases such as oxygen and carbon dioxide.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 11 OF 19 USPATFULL on STN
ACCESSION NUMBER: 92:17546 USPATFULL
TITLE: Electrical insulation film and condenser
INVENTOR(S): Funaki, Keisuke, Ichihara, Japan
Ohki, Yuichi, Himeji, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5093758		19920303
APPLICATION INFO.:	US 1990-589637		19900928 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1989-261953	19891009

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Griffin, Donald A.
LEGAL REPRESENTATIVE: Frishauf, Holtz, Goodman & Woodward
NUMBER OF CLAIMS: 14
EXEMPLARY CLAIM: 1
LINE COUNT: 732
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An electrical insulating film which comprises a styrene polymer having a syndiotactic configuration and containing not more than 1,000 ppm of residual aluminum derived from the catalyst used in the production of the styrene polymer, and not more than 3,000 ppm of **residual styrene** monomer, and a condenser comprising metal electrodes and

the above film which is 0.5 to 30 μm thick and has crystallinity of not less than 25%, are disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L1 ANSWER 12 OF 19 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1997-204002 JAPIO
TITLE: BASE FOR PHOTOGRAPHIC SENSITIVE MATERIAL
INVENTOR: SHIOZAKI SHIGERU
PATENT ASSIGNEE(S): KONICA CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 09204002	A	19970805	Heisei	G03C001-795

APPLICATION INFORMATION
STN FORMAT: JP 1996-11896 19960126
ORIGINAL: JP08011896 Heisei
PRIORITY APPLN. INFO.: JP 1996-11896 19960126
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1997

AN 1997-204002 JAPIO
AB PROBLEM TO BE SOLVED: To make a base excellent in thermal, physical, chemical and optical characteristics and dimensional stability and to improve the adhesiveness by specifying the **residual styrene** monomer content of the base made of a **syndiotactic polystyrene** film.
SOLUTION: This base is made of a biaxially oriented **syndiotactic polystyrene** film having <=0.05wt.% **residual styrene** monomer content. The stereoregular structure of the **syndiotactic polystyrene** film is mainly syndiotactic and the film is formed using a styrene polymer whose principal chain is mainly a racemic chain or a compsn. containing the polymer. The polymer is a polymer of a monomer such as alkylstyrene, chloromethylstyrene or vinylbenzoic ester or a mixture of such monomers.
COPYRIGHT: (C)1997,JPO

L1 ANSWER 13 OF 19 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1991-109453 JAPIO
TITLE: SLIPPERY FILM AND PRODUCTION THEREOF
INVENTOR: FUNAKI KEISUKE; OKI YUICHI
PATENT ASSIGNEE(S): IDEMITSU KOSAN CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 03109453	A	19910509	Heisei	C08L025-04

APPLICATION INFORMATION
STN FORMAT: JP 1989-245224 19890922
ORIGINAL: JP01245224 Heisei
PRIORITY APPLN. INFO.: JP 1989-245224 19890922
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1991

AN 1991-109453 JAPIO
AB PURPOSE: To obtain a slippery film having a rough surface on one side and a flat surface on the other side and exhibiting excellent flatness and slipperiness by laminating a plain resin layer and/or a resin layer containing inorganic particles on one surface of a layer composed of a styrene polymer having syndiotactic structure.
CONSTITUTION: The objective film having a rough surface on one a side and flat surface having surface roughness of 0.001-0.02μm on the other side and having a static frictional coefficient of 0.3-1 can be produced by

laminating a layer composed of a plain resin and/or a resin containing inorganic particles (especially a **syndiotactic styrene** polymer containing inorganic fine particles having an average particle diameter of 0.01-3μm) to a surface of a drawn film composed mainly of a styrene polymer having syndiotactic structure (especially a polymer having residual aluminum content of <=3,000ppm, residual titanium content of <=10ppm and **residual styrene** monomer content of <=7,000ppm) during the production process of the drawn film (especially before or after the drawing process or after the thermal treatment). COPYRIGHT: (C)1991,JPO&Japio

L1 ANSWER 14 OF 19 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:764561 CAPLUS
DOCUMENT NUMBER: 134:42842
TITLE: Benzocyclobutenes as styrene monomer scavengers and molecular weight "stabilizers" in atactic and **syndiotactic polystyrenes**
AUTHOR(S): Warakomski, John M.; Pike, William C.; Devries, Robert A.
CORPORATE SOURCE: Engineering Compounds Research and Development, The Dow Chemical Company, Midland, MI, 48667, USA
SOURCE: Journal of Applied Polymer Science (2000), 78(11), 2008-2015
CODEN: JAPNAB; ISSN: 0021-8995
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Syndiotactic polystyrene** (SPS) is a semicryst. polymer with a m.p. of 270°C. At processing temps. of 300°C or higher, SPS begins to decompose with loss of mol. weight and the formation of styrene monomer. Under these conditions, atactic polystyrene also decomps. One approach to controlling this generation and buildup of styrene and the mol. weight loss during processing is to add a compound that will react with styrene and/or with the polymer decomposition products at the processing conditions. This report describes the use of three benzocyclobutene (BCB) compds. (ethylene bis-BCB, divinyl disiloxane bis-BCB, and a copolymer of styrene and 4-vinyl BCB) during SPS and atactic polystyrene processing. The conclusions are: 1. BCB moieties, when extruded with SPS at the 2 weight % level, caused a substantial decrease in **residual styrene** compared with a control SPS; 2. BCB compds., when extruded with SPS, resulted in high mol. weight fractions. The result with the divinyl disiloxane bis-BCB was especially dramatic; and 3. BCB functionalized materials may find utility as additives in SPS during processing to minimize loss of mol. weight and buildup of styrene.
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 15 OF 19 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:526296 CAPLUS
DOCUMENT NUMBER: 127:169028
TITLE: **Syndiotactic polystyrene** photographic film support
INVENTOR(S): Shiozaki, Shigeru
PATENT ASSIGNEE(S): Konica Co., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09204002	A2	19970805	JP 1996-11896	19960126

PRIORITY APPLN. INFO.: JP 1996-11896 19960126

AB The support is a biaxially oriented **syndiotactic polystyrene** derivative containing **residual styrene** -type monomer ≤0.05 weight%. The support shows good dimensional stability and good adhesion with photog. materials.

L1 ANSWER 16 OF 19 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:759374 CAPLUS
DOCUMENT NUMBER: 123:200776
TITLE: Styrene-type resin compositions and moldings thereof
INVENTOR(S): Uchida, Takaaki
PATENT ASSIGNEE(S): Idemitsu Kosan Co, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07157613	A2	19950620	JP 1993-308788	19931209

PRIORITY APPLN. INFO.: JP 1993-308788 19931209

AB The title compns. with good heat decomposition resistance comprise (A) high **syndiotactic styrene**-type polymers 80-97, (B) styrene-type rubbers and/or polyolefin-type rubbers 3-20, and (C) phenolic antioxidants with mol. weight ≥300 composed of C, H, and O. Moldings are composed of the styrene-type polymers or their compns. with **residual styrene**-type monomer concentration ≤100 ppm, YI ≤15, crystallization degree of the polymer parts ≥40%, tensile impact strength ≥30 kJ/m2, and thickness 50-1000 μm. The moldings are useful for food packagings, etc. Thus, 71 mmol CuSO4.5H2O and 250 mmol trimethylaluminum were allowed to react at 40° in PhMe to give 6.7 g a contact substance (CS) with mol. weight 610. Then 1 L styrene was polymerized at 90° in the presence of CS, triisobutylaluminum, and pentamethylcyclopentadienyltitanium trimethoxide, CS was decomposed by NaOH MeOH solution, the polymer was washed with MeOH to give 466 g **syndiotactic polystyrene** with weight average mol. weight 290,000, 150 g of which was dried at 150°, blended with 10 parts Kraton G 1651 (hydrogenated styrene-butadiene rubber) and 0.5% Irganox 1010, melt kneaded, extruded, cooled, pelletized, T-die extruded at 320°, bonded on a metal cooling roll, plug-assist molded at 220°, and oven-heated at 250° to give a molding with good heat resistance.

L1 ANSWER 17 OF 19 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:201657 CAPLUS
DOCUMENT NUMBER: 123:33741
TITLE: **Residual styrene** monomer reduction in **syndiotactic polystyrenes**
AUTHOR(S): Anon.
CORPORATE SOURCE: UK
SOURCE: Research Disclosure (1994), 366, 557-8 (No. 36605)
CODEN: RSDSBB; ISSN: 0374-4353
DOCUMENT TYPE: Journal; Patent
LANGUAGE: English
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RD 366005		19941010		

PRIORITY APPLN. INFO.: RD 1994-366005 19941010

AB A number of techniques for reducing the concentration of **residual styrene** monomer in **syndiotactic polystyrene**

including use of reactive scavengers, absorbents, free radical generation, and extractants are discussed.

L1 ANSWER 18 OF 19 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:410543 CAPLUS
DOCUMENT NUMBER: 115:10543
TITLE: Highly smooth **syndiotactic styrene** polymer films
INVENTOR(S): Funaki, Keisuke; Ooki, Juichi
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03070746	A2	19910326	JP 1989-208385	19890811
JP 2742099	B2	19980422		

PRIORITY APPLN. INFO.: JP 1989-208385 19890811

AB The title films useful for magnetic tapes are stretched films of mainly **syndiotactic styrene** polymers with residual Al content <300 ppm, residual Ti content <10 ppm, and **residual styrene** monomer content <7000 ppm and have surface roughness Ra <0.02 μm. **Syndiotactic polystyrene** having residual monomer content 1100 ppm, Al content 880 ppm, Ti content 4 ppm, and weight-average mol. weight 389,000 gave a 12 μm-thick biaxially stretched film with Ra 0.008 μm, compared with 0.025 μm for control polymer with residual monomer content 8000 ppm.

L1 ANSWER 19 OF 19 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:258207 CAPLUS
DOCUMENT NUMBER: 114:258207
TITLE: Electrical insulation film and condenser
INVENTOR(S): Funaki, Keisuke; Ohki, Yuichi
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 423545	A1	19910424	EP 1990-118955	19901004
EP 423545	B1	19991229		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
JP 03124750	A2	19910528	JP 1989-261953	19891009
JP 2996472	B2	19991227		
US 5093758	A	19920303	US 1990-589637	19900928
CA 2026973	AA	19910410	CA 1990-2026973	19901004
AT 188308	E	20000115	AT 1990-118955	19901004
ES 2141703	T3	20000401	ES 1990-118955	19901004

PRIORITY APPLN. INFO.: JP 1989-261953 19891009

AB An elec. insulating film, which comprises a styrene polymer having a syndiotactic configuration and containing ≤1000 ppm of residual Al derived from the catalyst used in the production of the styrene polymer and ≤3000 ppm of **residual styrene** monomer, and a condenser, which comprises metal electrodes and the above film which is 0.5-30 μm thick and has crystallinity of ≥25%, are disclosed.

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L1 ANSWER 11 OF 19 USPATFULL on STN

AB An electrical insulating film which comprises a styrene polymer having a syndiotactic configuration and containing not more than 1,000 ppm of residual aluminum derived from the catalyst used in the production of the styrene polymer, and not more than 3,000 ppm of **residual styrene** monomer, and a condenser comprising metal electrodes and the above film which is 0.5 to 30 μm thick and has crystallinity of not less than 25%, are disclosed.

SUMM That is, the present invention provides an electrical insulating film comprising a styrene polymer having a syndiotactic configuration which contains not more than 1,000 ppm of residual aluminum derived from the catalyst use in the production of the styrene polymer, and not more than 3,000 ppm of **residual styrene** monomer. Further, the present invention also provides a condenser which comprises metal electrodes and a 0.5 to 30 μm thick electrical insulating film comprising a styrene polymer having crystallinity of not less than 25% and a syndiotactic configuration which contains not more than 1,000 ppm of residual aluminum derived from catalyst used in the production of the styrene polymer, and not more than 3,000 ppm of **residual styrene** monomer.

SUMM The styrene polymer of the present invention having a syndiotactic configuration is as described above and is of high purity with extremely low impurities content. That is, the aluminum content in the styrene polymer should be not more than 1,000 ppm, preferably 800 ppm, said aluminum being derived from the catalyst used in the process for production wherein a styrene monomer is polymerized to produce the styrene polymer, and the **residual styrene** monomer content in the styrene polymer should be not more than 3,000 ppm, preferably, 2,000 ppm.

SUMM The methods for production of such styrene polymer of high purity includes various ones as shown below. In this case, the monomer corresponding to the above-described polymer is used as a starting material. Firstly for control of the residual aluminum content and **residual styrene** monomer content within the above range, (1) a method in which a highly active catalyst is used to produce a styrene polymer (see, Japanese Patent Application Laid-Open No. 294705/1989) or (2) a method which comprises deashing and washing, that is, a method wherein a styrene monomer is polymerized using a conventional organometallic compound of group IVA described, for example, in Japanese Patent Application Laid-Open No. 187708/1987 (e.g. an organic titanium compound) and alkylaluminoxane such as methylaluminoxane as the catalyst components, then the resulting styrene polymer having a syndiotactic configuration is deashed with a solution of acid or alkali in a suitable solvent, and washed with a suitable solvent.

SUMM As mentioned above, a styrene polymer having a syndiotactic configuration with less residual aluminum content can be obtained by the method (1) or (2). Further, the product is treated by the following method (3) or (4) to control the **residual styrene** monomer content below 5,000 ppm. When the **residual styrene** monomer content of the product in this step is not more than 5,000 ppm, the product may be formed into a film with the residue content of the desired value, i.e. 3,000 ppm or less.

SUMM Such treatment provides a styrene polymer of high purity which contains less residual aluminum and **residual styrene** monomer and has a high degree of syndiotactic configuration.

DETD The styrene polymer powder obtained in Reference Example 1 was dried in a vacuum at 150° C. for 2 hours with stirring. The powder was melt extruded by a vented uniaxial extruder equipped with a die containing several capillaries at the end thereof, then cooled and cut to prepare material for extrusion (pellet). In this step, the melt temperature was 300° C., a screw of the extruder was full flighted type with a diameter of 50 mm, extrusion rate was 30 kg/hr, and vent pressure was set at 10 mmHg. Then, the pellet was crystallized and dried in a hot air with stirring. The **residual styrene** monomer content in the resulting pellet was 1,100 ppm, and the crystallinity was 35%. This pellet was extruded by a vibration-proofing apparatus comprising a serial tandem type uniaxial extruder with a T-die at the tip thereof. The extrusion temperature was 320° C., and shear stress was 3+10.sup.5 dyne/cm.sup.2.

DETD The styrene polymer obtained in Reference Example 1 was deashed with sodium hydroxide/methanol, and repeatedly washed with methanol. The residual aluminum content, **residual styrene** monomer content and titanium content in this polymer were 50 ppm, 600 ppm and less than 2 ppm, respectively.

DETD TABLE 2

Dielectric Film Condenser Characteristics

Example No.	Resin.sup.1)	Al (ppm)	Mono-mer (ppm)	Thick-ness (μm)	Dielectric Dissipation Factor (tan δ) 1 kHz/RT	Dielectric Dissipation Factor (tan δ) 1 kHz/150° C.	Electrostatic Capacity Rate of Change in.sup.2) 10 kHz/RT	Electrostatic Capacity Rate of Change in.sup.2) 1 kHz/150° C.	Electrostatic Capacity Rate of Change in.sup.2) 10 kHz/RT	Soldering Test.sup.3)
Example 5	SPS	880	1,200	6	0.0012	0.0010	0.0018	-3	-1	.smallcircle.
Example 6	SPS	50	600	6	0.0011	0.0011	0.0017	-3	-1	.smallcircle.
Example 7	SPS	50	750	3	0.0010	0.0010	0.0020	-3	-1	.smallcircle.
Example 8	SPS	50	960	12	0.0009	0.0009	0.0016	-3	-1	.smallcircle.
Comparative	SPS	4,500	1,030							

			6	0.003	0.002	0.003	-4	-2	x
Example 3									
Comparative									
	SPS	880	3,580						
			6	0.004	0.003	0.004	-4	-2	x
Example 4									
Comparative									
	SPS	880	1,200						
			12	0.0015					
					Cannot be				
						0.0018			
							Cannot be		
								-1	x
Example 5					Measured		Measured		
Comparative									
	PET	--	--	6	0.003	0.003	0.005	+3	-3	x
Example 6									

.sup.1) SPS: **Syndiotactic polystyrene**, PET: Polyethylene terephthalate

.sup.2) Rate of change (%) based on a capacity at 1 kHz at room temperature

.sup.3) change in capacity after soldering at 250° C.

.smallcircle.: not exceeding 10%, x: over 10%

PET did not function as condenser because it melted.

CLM What is claimed is:

1. An electrical insulating film which comprises a styrene polymer having a syndiotactic configuration and containing not more than 1,000 ppm of residual aluminum derived from the catalyst used in the production of the produced styrene polymer, and not more than 3,000 ppm of **residual styrene** monomer.

3. The electrical insulating film according to claim 2, wherein the residual aluminum content is not more than 800 ppm and the **residual styrene** monomer content is not more than 2,000 ppm; the crystallinity of the styrene monomer is 25% or more; and the syndiotacticity is at least 30% in the racemic pentad.

6. The electrical insulating film according to claim 1, wherein the residual aluminum content is not more than 800 ppm and the **residual styrene** monomer content is not more than 2,000 ppm.

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L1 ANSWER 10 OF 19 USPATFULL on STN

TI Method of storing food or plant materials by wrapping with a stretched **syndiotactic polystyrene** film

DETD A further advantage to heat treatment for attaining the function of the film as a food wrap, is the reduction in **residual styrene** monomer in the film. This is extremely important from a hygiene point of view when the film is used as wrap in contact with food.

DETD TABLE 1

	Coefficient Oxygen Permeation (+ 10)*.sup.2	Residual Styrene	Thermal Stretch Heat Tensile

	Polymer*.sup.1	Ratio (times)	Treatment Conditions	(cc-cm/cm-sec-cmHg)	Haze (%)	Strength (kg/cm.sup.2)	monomer (ppm)	deformation Temperature*.sup.3 (°C.)
Example 1	SPS	3 + 3	250° C. 30 sec	3.8	4	870	6	242
Comparative Example 1	SPS	3.5 + 3.5	--	2.1	3	860	430	105
Example 2	SPS	3.5 + 3.5	250° C. 30 sec	4.0	3	920	4	240
Example 3	SPS	4 + 4	250° C. 30 sec	4.5	2	980	3	238
Comparative Example 2	aPS	4 + 4	--	1.0	2	690	530	95
Example 4	SPS	3.5 + 3.5	150° C. 300 sec	3.6	3	940	7	147
Example 5	SPS	3.5 + 3.5	270° C. 5 sec	5.1	3	900	3	262
Comparative Example 3	iPS	3.5 + 3.5	250° C. 30 sec	--	--	--	--	--
Comparative Example 4	iPS	3.5 + 3.5	150° C. 300 sec	1.5	5	740	--	104

*.sup.1 SPS: **Syndiotactic polystyrene**
aPS: Atactic polystyrene
iPS: Isotactic polystyrene
*.sup.2 According to ASTM D1434-75M.

*.sup.3 2% thermal deformation temperature was measured according to TMA (Thermal Mechanical Analysis).

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L1 ANSWER 9 OF 19 USPATFULL on STN
TI Photographic film of **syndiotactic styrene** polymer
SUMM In order to obtain a film having the above properties in the layer A of the present invention, the **residual styrene** monomer content in the styrene polymer or a composition thereof should be preferably not more than 7,000 ppm. Such styrene polymer or a composition thereof may be prepared by the following methods:

DETD TABLE

Example No.	Layer A (Base Film) Resin.sup.1)	Haze.sup.2) (μm) (/ % RH)	Moisture Expansion Coefficient	Thick-ness	Photographic Film Type	Specific Gravity	Before Treatment.sup.3) Image	After Treatment.sup.3) Image	Elastic Modulus
Example 1	SPS	1.8 85	5 + 10.sup.-7		Silver salt Photosensitive Film	1.06	Good	Good	Good
Example 2	SPS/aPS	1.6 85	5 + 10.sup.-7		Silver salt Photosensitive Film	1.05	Good	Good	Good
Example 3	co-SPS	1.4 85	5 + 10.sup.-7		Silver salt Photosensitive Film	1.06	Good	Good	Good
Example 4	SPS	1.8 85	5 + 10.sup.-7		Diazo Photosensitive Film	1.06	Good	Good	Good
Comparative	SPS	4.5 85	6 + 10.sup.-7		Silver salt	1.06	Bad	--	--

Example 1 Photosensitive Film
Comparative
aPS 1.4 85 1.2 + 10.sup.-6
Silver salt
1.04 Good Bad Accept-
Example 2 Photosensitive Film able
Comparative
PET 2.1 75 1.0 + 10.sup.-5
Silver salt
1.39 Good Bad Bad
Example 3 Photosensitive Film

.sup.1) SPS: **Syndiotactic polystyrene**
aPS: Atactic polystyrene
co-SPS: Syndiotactic (styrenep-methylstyrene) copolymer
PET: Polyethylene terephthalate
.sup.2) Measured according to JIS K 705
.sup.3) Development properties
Before treatment (immediately after development)
Image
Good: Al diffraction point clearly came out.
Bad: High dimensional Al diffraction point was unclear.
After treatment (treated at 90° C., 85% RH for 12 hours)
Image
Good: Same as defined for that immediately after development.
Bad: Image was dislocated due to, for example, warp, shrinkage of the film.
Elastic Modulus: Measured by a solid viscoelasticity measuring device (spectrometer) at 30° C.
Good: ≥40,000 kg/cm.sup.2 -
Acceptable: 25,000-40,000 kg/cm.sup.2
Bad: ≤25,000 kg/cm.sup.2 -
CLM What is claimed is:
10. The photographic film according to claim 1, wherein the **residual styrene** monomer content in the styrene polymer is not more than 7,000 ppm.

=> d l1 8 hit

L1 ANSWER 8 OF 19 USPATFULL on STN
DETD Preparation of **Syndiotactic Polystyrene**
DETD The powdery styrenic polymer obtained in the above production example was subjected to vacuum drying with stirring at 150° C. for 2 hours. The dried powder was melt extruded with a uniaxial extruding machine equipped with a vent and a die with a plurality of capillaries at the end thereof, cooled and cut off to produce raw material for extrusion molding in the form of pellet. The above melt extrusion was carried out at a melt temperature of 300° C., screw diameter of 50 mm with full flight type, extrusion rate of 30 kg/hr and vent pressure of 10 mmHg. Subsequently, the pellet was crystallized and dried in hot air with stirring. The dried pellet thus obtained had a **residual styrene** monomer content of 1100 ppm and a crystallinity of 35%. Thereafter, the dried pellet was extruded at a extrusion temperature of 320° C., shear stress of 3+10.sup.5 dyne/cm.sup.2 by the use of a vibrationproof apparatus equipped with a T-die at the end of the uniaxial extruding machine to produce a melt extruded sheet.

=> d l1 7 hit

L1 ANSWER 7 OF 19 USPATFULL on STN

DETD PRODUCTION EXAMPLE (PREPARATION OF **SYNDIOTACTIC POLYSTYRENE**)

DETD The powdery styrenic polymer obtained in the above production example was subjected to vacuum drying with stirring at 150° C. for 2 hours. The dried powder was melt extruded with a uniaxial extruding machine equipped with a vent and a die with a plurality of capillaries at the end thereof, cooled and cut off to produce raw material for extrusion molding in the form of pellet. The above melt extrusion was carried out at a melt temperature of 300° C., screw diameter of 50 mm with full flight type, extrusion rate of 30 kg/hr and vent pressure of 10 mmHg. Subsequently, the pellet was crystallized and dried in hot air with stirring. The dried pellet thus obtained had a **residual styrene** monomer content of 1,100 ppm and a crystallinity of 35%. Thereafter, the dried pellet was extruded at a extrusion temperature of 320° C., shear stress of 3+10.sup.5 dyne/cm.sup.2 by the use of an apparatus equipped with a T-die at the end of the uniaxial extruding machine to produce a melt extruded sheet.

DETD In the table, SPS stands for **syndiotactic polystyrene** ; PET designates polyethylene terephthalate; all the thicknesses are expressed in μm; crystallinity was determined by DSC method; and the properties of the laminates were evaluated in the following manner:

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L1 ANSWER 3 OF 19 USPATFULL on STN

TI Solid state devolatilization of **syndiotactic vinyl aromatic** polymers with catalyst deactivation

SUMM The process of the present invention relates to methods of producing **syndiotactic vinyl aromatic** polymers.

SUMM In the production of **syndiotactic vinyl aromatic** polymers such as **syndiotactic polystyrene** (SPS), a devolatilization step is typically used to remove residual monomers, process solvents, and other volatile components from the SPS polymer. This process is complicated by the fact that **residual vinyl aromatic** and other monomers can autopolymerize upon heating to form atactic vinyl aromatic and other polymers, for example, atactic polystyrene, which are unwanted contaminants in SPS polymers. Atactic vinyl aromatic polymers degrade the SPS polymer properties such as heat distortion temperature and reduce the crystallization rate of SPS homopolymer and copolymer resins.

SUMM Therefore, there remains a need for a process of devolatilizing **syndiotactic vinyl aromatic** polymers which does not involve the additional operation of deashing or deactivating catalyst residues while producing polymers having reduced volatiles, reduced discoloration and improved whiteness.

SUMM This improved devolatilization process removes volatiles, including **residual vinyl aromatic** monomer(s), from wet **syndiotactic vinyl aromatic** polymer while simultaneously deactivating the active catalyst residues, such that a separate deashing or deactivation step is not needed. Surprisingly, polymers having low contents of residual monomers and other volatile components, reduced discoloration, and improved whiteness are obtained using the improved devolatilization process of the present invention.

SUMM In one embodiment, the present invention is an improved process for devolatilizing **syndiotactic vinyl aromatic** polymers.

SUMM **Syndiotactic vinyl aromatic** polymers are

homopolymers and copolymers of vinyl aromatic monomers, that is, monomers whose chemical structure possess both an unsaturated moiety and an aromatic moiety. The preferred vinyl aromatic monomers have the formula:

SUMM wherein R is hydrogen or an alkyl group having from 1 to 4 carbon atoms, and Ar is an aromatic radical of from 6 to 10 carbon atoms. Examples of such vinyl aromatic monomers are styrene, alpha-methylstyrene, ortho-methylstyrene, meta-methylstyrene, para-methylstyrene, vinyl toluene, para-t-butylstyrene, vinyl naphthalene, divinylbenzene and the like. **Syndiotactic polystyrene** is the currently preferred **syndiotactic vinyl aromatic** polymer. Typical polymerization processes and coordination catalyst systems for producing **syndiotactic vinyl aromatic** polymers are well known in the art and are described in U.S. Pat. Nos. 4,680,353, 5,066,741, 5,206,197 and 5,294,685, which are incorporated herein by reference.

SUMM During polymerization of the vinyl aromatic monomer, the polymerization reaction is not typically carried to completion and a mixture of **syndiotactic vinyl aromatic** polymer and volatiles, such as residual monomers and process solvents, is produced. This mixture typically contains from about 2 to about 99 percent solid, non-volatile, high molecular weight polymer, preferably from about 30 to about 95 percent, more preferably from about 40 to about 95 percent, and most preferably from about 70 to about 95 percent by weight based on the total weight of the mixture. The polymer can then be recovered from this mixture using a finishing process such as devolatilization to produce resins which are useful for forming injection molded articles, films, fibers, etc. The process of the present invention is an improved solid state process for devolatilizing the **syndiotactic vinyl aromatic** polymer/volatile mixture, hereafter referred to as wet feed mixture.

SUMM The wet feed mixture is typically discharged from a polymerization reactor or polymer recovery system at a temperature below 100° C., typically from about 10 to about 90° C. This mixture is then devolatilized in the solid state in the presence of a catalyst deactivating gas at a temperature between the glass transition temperature (typically around 100° C.) and the melting point of the devolatilized **syndiotactic vinyl aromatic** polymer (typically from 200 to 320° C.). To reduce the time necessary to achieve the desired level of volatiles removal, the wet feed mixture is preferably heated to a temperature of at least 150° C., more preferably to at least 200° C.

SUMM As a result of heating the wet feed mixture, volatile components including **residual vinyl aromatic** monomers, are released from the polymer, vaporized, and conveyed out of the apparatus along with the catalyst deactivating gas. The residence time in the devolatilization apparatus should be sufficient to reduce the **residual vinyl aromatic** monomer content in the devolatilized polymer from the initial value in the wet feed mixture, typically 5 to 60 weight percent, to below 3 percent by weight, preferably less than 1 percent by weight, more preferably less than 1000 ppm, and most preferably less than 800 ppm based on the weight of the devolatilized polymer. The residence time needed in the devolatilization apparatus to achieve such a reduced volatiles level is dependent upon the original volatiles content of the wet feed mixture, the temperature in the devolatilization apparatus, the total flow rate of catalyst deactivating and inert gases, the absolute pressure in the devolatilization apparatus, and the physical characteristics of the wet feed mixture. Generally, the devolatilization is conducted under conditions such that the residence time needed to achieve the

residual vinyl aromatic monomer content recited above is 24 hours or less, typically 12 hours or less, preferably 4 hours or less, more preferably 1 hour or less and most preferably 30 minutes or less.

SUMM Alternatively, a rapid heating devolatilization method can be used wherein the wet feed mixture is rapidly heated to a temperature between about 150° C. and the melting temperature of the **syndiotactic vinyl aromatic** polymer. Preferably, the mixture is heated to a temperature which is approximately 20° C. below the melting point of the fully dried polymer. Rapid heating can generally be performed in an apparatus capable of increasing the temperature of the wet feed mixture at an average rate of at least 10° C./minute, typically at least 10 to 1000° C./minute, preferably at least 20° C./minute, more preferably at least 30° C./minute, and most preferably at least 40° C./minute. By heating at a faster rate, the residual monomer is more likely to volatilize rather than polymerize, thus less atactic vinyl aromatic polymer is formed. When this heating process is combined with the process of the present invention, a **syndiotactic vinyl aromatic** polymer resin with low color and low atactic polymer content is advantageously produced.

SUMM For crystallized, opaque pellets produced using the devolatilization process of the present invention, the reduced discoloration of the **syndiotactic vinyl aromatic** polymer can be measure according to ASTM E313 which measures a Yellowness Index or YIE. Typically, the polymer produced by the process of the present invention obtains a YIE of less than 10. Alternatively, ASTM D1925 which compares the Yellowness Index of nearly transparent extruded films of equal thickness using a light transmission technique can be used.

SUMM **Residual vinyl aromatic** monomer content can be determined using headspace gas chromatography with an appropriate solvent, for example, orthodichlorobenzene, by reference to samples of known composition. Atactic polymer content can be determined by Soxhlet extraction using methyl ethyl ketone, which is a solvent for atactic vinyl aromatic polymers, and a non-solvent for crystalline, **syndiotactic vinyl aromatic** homopolymers and copolymers. These methods are well known by those skilled in the art.

SUMM Typically, the **syndiotactic vinyl aromatic** polymers produced in accordance with the present invention have a weight average molecular weight (Mw) of at least 15,000, preferably at least 50,000, and most preferably from 150,000 to 500,000.

SUMM The improved devolatilization process of the present invention produces **syndiotactic vinyl aromatic** polymers having reduced levels of **residual vinyl aromatic** monomer and other volatile components, and reduced color as compared to polymers produced using conventional catalyst deactivation technology. Additionally, when steam is used as the catalyst deactivating gas in the absence of inert gas diluents, the exiting gas stream can be completely condensed, reducing the amount of potential emissions to the environment.

SUMM Although the process of the present invention is exemplified as useful in producing **syndiotactic vinyl aromatic** polymers, it would also be useful in polymerization processes which use other metallocene or Zeigler-Natta type polymerization catalysts which must be deactivated to reduce polymer discoloration, such as in the production of polyolefins, for example, polypropylene.

DETD A wet feed of **syndiotactic polystyrene** homopolymer

powder at approximately 20° C. and containing 25 percent by weight volatile components (less than 1 percent by weight atactic polystyrene) is fed continuously into a high speed paddle type dryer (Solidaire.TM. model SJS 16-10, made by Hosokawa Bepex Corp.) having a feed zone jacket temperature of 220° C., a product discharge zone jacket temperature of 250° C., and an agitator rotational speed of 250 rpm at two different feed rates as defined below. The dryer is purged with steam, preheated to a temperature of 240° C., flowing countercurrent to the direction of the solids. The dried product is then analyzed for styrene monomer (SM) using headspace gas chromatography and atactic polystyrene (APS) content using Soxhlet extraction. The following results are obtained:

DETD As shown above further reductions in **residual styrene** level can be achieved in a secondary dryer.

DETD A wet feed of **syndiotactic polystyrene** homopolymer containing 25 percent volatile components, less than 1 percent atactic polymer, and active catalyst residues is fed from a polymerization reactor system inertly, without contacting air, at a rate of 25 kg/hr to a finishing process consisting of a Solidaire.TM. dryer (model SJS 8-4, made by Hosokawa Bepex Corp.) followed by a Werner & Pfleiderer ZSK-30 twin screw extruder, with L/D=37, equipped with two high vacuum (5 to 10 mm. Hg) vents. The dryer is operated with a feed zone jacket temperature of 188° C., a discharge zone jacket temperature of 245° C., and a rotor speed of 500 rpm. Low pressure (270 kPa) saturated steam is filtered through a 10 μm fiberglass filter (to remove particulates of rust and other potential color bodies), preheated to 270° C., and fed to the Solidaire.TM. countercurrent to the solids flow at a rate of 13.97 kg/hr (equivalent to a volumetric flow rate of 0.31 m.sup.3 /min at 20° C.). The extruder barrel set point temperatures range from 170 to 270° C. and the extruder screw speed is 275 rpm. The powdered polymer is first devolatilized in the Solidaire.TM. dryer using steam as the purge gas and then further devolatilized in the extruder, crystallized, and cut into pellets.

DETD The **residual styrene** content of the polymer pellets produced is 1125 ppm as measured by headspace gas chromatography while the atactic polystyrene content is 1.84 percent by weight as measure by Soxhlet extraction. The pellet Yellowness Index (YIE) is measure according to ASTM standard E313, the five sample average being 5.46.

DETD The **residual styrene** content of the pellets produced is 1175 ppm and the YIE is 12.35.

DETD This example demonstrates the importance of avoiding contact with air in minimizing color formation during finishing of **syndiotactic vinyl aromatic** polymers.

DETD A **syndiotactic vinyl aromatic** copolymer consisting of 93 mole percent styrene and 7 mole percent p-methylstyrene, containing 20 percent volatile components and less than 1 percent atactic polymer, is fed directly, without deactivating catalyst residues, from a polymerization reactor system to a finishing process at a rate of 25 kg/hr. The finishing process consists of a Solidaire.TM. dryer (model SJS 8-4, made by Hosokawa Bepex Corp.), followed by a Werner & Pfleiderer ZSK-30 twin screw extruder, with L/D=37, equipped with two high vacuum (5 to 10 mm. Hg) vents as in Example 2. The feed zone jacket temperature of the Solidaire is 178° C., the discharge zone jacket temperature is 215° C., and the rotor speed is 500 rpm. The countercurrent purge gas to the Solidaire.TM. dryer consists of a mixture of Nitrogen gas and steam, which are measured separately (0.29 m.sup.3 /min Nitrogen, 2.2 kg/hr steam), combined (to produce an equivalent gas flow of 0.34 m.sup.3 /min at 20° C.), and preheated to a temperature of 245° C. Devolatilized powder exits the dryer and is fed to the extruder which has barrel set point temperatures ranging from 160 to 255° C. and a screw speed of 275 rpm. The crystallized pellets exiting the process have a **residual styrene** content of 1580 ppm and a YIE of 9.61.

DETD The **residual styrene** content is 980 ppm and the YIE is 14.81.

CLM What is claimed is:

1. An improved solid state polymer devolatilization process which comprises heating a wet feed mixture comprising **syndiotactic vinyl aromatic** polymer, residual monomer(s), process solvents and residual active catalyst, to a temperature between the glass transition temperature and the melting point of the polymer, in the presence of an inert gas, wherein the improvement comprises replacing the inert gas with a catalyst deactivating gas.

2. The process of claim 1 where the **syndiotactic vinyl aromatic** polymer is **syndiotactic polystyrene** (SPS).

4. The process of claim 2 wherein the total residual monomer content of the devolatilized **syndiotactic vinyl aromatic** polymer is less than 3 percent by weight based on the total weight of the devolatilized **syndiotactic vinyl aromatic** polymer.

5. The process of claim 4 wherein the total residual monomer content of the devolatilized **syndiotactic vinyl aromatic** polymer is less than 1 percent by weight based on the total weight of the devolatilized **syndiotactic vinyl aromatic** polymer.

6. The process of claim 5 wherein the total residual monomer content of the devolatilized **syndiotactic vinyl aromatic** polymer is less than 1000 ppm by weight based on the total weight of the devolatilized **syndiotactic vinyl aromatic** polymer.

7. The process of claim 6 wherein the total residual monomer content of the devolatilized **syndiotactic vinyl aromatic** polymer is less than 800 ppm by weight based on the total weight of the devolatilized **syndiotactic vinyl aromatic** polymer.

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(FILE 'HOME' ENTERED AT 16:24:41 ON 21 JUN 2004)
SET ABBR ON PERM
SET PLURALS ON PERM

FILE 'USPATFULL, USPAT2, JAPIO, CAPLUS' ENTERED AT 16:25:07 ON 21 JUN 2004
L1 19 S SYNDIOTACTIC?(1W)(STYRENE OR VINYL AROMATIC OR POLYSTYRENE) A

=> s (syndiotactic?(1w)(styrene or vinyl aromatic or polystyrene))(10w)(heat(1w)treat?)
L2 7 (SYNDIOTACTIC?(1W)(STYRENE OR VINYL AROMATIC OR POLYSTYRENE))(10W)(HEAT(1W) TREAT?)

=> d 12 1-7 ibib abs

L2 ANSWER 1 OF 7 USPATFULL on STN
ACCESSION NUMBER: 2004:92537 USPATFULL
TITLE: Multilayered film and near-infrared-ray reflection film
INVENTOR(S): Oya, Taro, Kanagawa, JAPAN
Murooka, Hirofumi, Kanagawa, JAPAN

NUMBER KIND DATE

PATENT INFORMATION:	US 2004069977	A1	20040415
APPLICATION INFO.:	US 2003-432716	A1	20030923 (10)
	WO 2001-JP10239		20011122

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2000-359135	20001127
	JP 2000-359136	20001127

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: SUGHRUE MION, PLLC, 2100 PENNSYLVANIA AVENUE, N.W., SUITE 800, WASHINGTON, DC, 20037
NUMBER OF CLAIMS: 19
EXEMPLARY CLAIM: 1
LINE COUNT: 1159
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A multilayer film which comprises a first layer comprising a polyethylene-2,6-naphthalene dicarboxylate and a second layer comprising a thermoplastic resin having a lower refractive index than the polyethylene-2,6-naphthalene dicarboxylate constituting the first layer, wherein:

the first and second layers each having a thickness of 0.05 μm to 0.3 μm are laminated alternately so as to form a laminate comprising at least 11 layers,

at least either the first layers or the second layers differ in thickness,

a value obtained by dividing the thickness of a layer with a maximum thickness by the thickness of a layer with a minimum thickness is not smaller than 1.2, and

at least either the laminated first layers or the second layers are stretched at least in one direction.

The multilayer film reflects light of given wavelength range selectively and widely. Hence, the film can prevent malfunctions in peripheral devices caused by broadband near infrared light radiated from a display surface of a plasma display, is inexpensive, has a high light transmittance, and is used for a front panel.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 2 OF 7 USPATFULL on STN
ACCESSION NUMBER: 2001:40187 USPATFULL
TITLE: Photothermographic material
INVENTOR(S): Katoh, Kazunobu, Kanagawa, Japan
Sakai, Minoru, Kanagawa, Japan
Arai, Tsutomu, Kanagawa, Japan
Hashimoto, Kiyokazu, Kanagawa, Japan
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Kanagawa, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6203972	B1	20010320
APPLICATION INFO.:	US 1997-845370		19970424 (8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-130848	19960426
	JP 1996-132834	19960430

	JP 1996-132836	19960430
	JP 1996-132840	19960430
	JP 1996-132841	19960430
	JP 1996-304011	19961030
	JP 1996-358412	19961228

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Chea, Thorl
NUMBER OF CLAIMS: 27
EXEMPLARY CLAIM: 1
LINE COUNT: 3556
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A photothermographic material has a support bearing a photosensitive layer containing an organic silver salt, a photosensitive silver halide, a reducing agent, and a ultrahigh contrast promoting agent. The support is a plastic film having a Tg of at least 90° C. Better results are obtained when the support experiences a dimensional change of up to 0.04% when heated at 115° C. for 30 seconds. Preferably, a conductive polymer layer is provided typically as an outermost layer, and an outermost layer has a Bekk smoothness of up to 4,000 seconds, typically a back layer has a Bekk smoothness of up to 4,000 seconds. The photothermographic material has improved dimensional stability and produces ultrahigh contrast images with high Dmax.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 3 OF 7 USPATFULL on STN
ACCESSION NUMBER: 96:19192 USPATFULL
TITLE: Process for production of styrene-based polymer moldings
INVENTOR(S): Nakano, Akikazu, Ichihara, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5496919		19960305
APPLICATION INFO.:	US 1993-116066		19930902 (8)

RELATED APPLN. INFO.: Division of Ser. No. US 1992-960577, filed on 13 Oct 1992, now patented, Pat. No. US 5270442, issued on 14 Dec 1993 which is a continuation of Ser. No. US 1991-665930, filed on 5 Mar 1991, now abandoned which is a continuation of Ser. No. US 1988-286372, filed on 19 Dec 1988, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-3846	19880113

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Teskin, Fred
LEGAL REPRESENTATIVE: Frishauf, Holtz, Goodman, Langer & Chick
NUMBER OF CLAIMS: 14
EXEMPLARY CLAIM: 1
LINE COUNT: 429
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A process of producing a styrene polymer molding which comprises heat treating a molding of a crystalline styrene polymer having mainly a syndiotactic configuration and having a crystallinity of at least 10% as determined by X-ray diffraction analysis. The heat treating is carried out at a temperature of 150°to 250° C. for 20 seconds to 90 minutes.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 4 OF 7 USPATFULL on STN
ACCESSION NUMBER: 93:105085 USPATFULL
TITLE: Styrene-based polymer moldings
INVENTOR(S): Nakano, Akikazu, Ichihara, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5270442		19931214
APPLICATION INFO.:	US 1992-960577		19921013 (7)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1991-665930, filed on 5 Mar 1991, now abandoned which is a continuation of Ser. No. US 1988-286372, filed on 19 Dec 1988, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-3846	19880113

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Teskin, Fred
LEGAL REPRESENTATIVE: Frishauf, Holtz, Goodman & Woodward
NUMBER OF CLAIMS: 17
EXEMPLARY CLAIM: 1
LINE COUNT: 425
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Styrene-based polymer moldings with a crystallinity of at least 20% obtained by subjecting moldings of crystalline styrene-based polymers having mainly syndiotactic configuration to heat treatment at a temperature of 120° to 270° C. These moldings are excellent in physical properties such as heat resistance and chemical resistance, and thus are expected to find various applications, for example, in general construction materials, electric or electronic devices, and car parts.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 5 OF 7 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1997-068776 JAPIO
TITLE: SILVER HALIDE PHOTOGRAPHIC SENSITIVE MATERIAL
INVENTOR: SHIOZAKI SHIGERU
PATENT ASSIGNEE(S): KONICA CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 09068776	A	19970311	Heisei	G03C001-795

APPLICATION INFORMATION

STN FORMAT:	JP 1995-221999	19950830
ORIGINAL:	JP07221999	Heisei

PRIORITY APPLN. INFO.: JP 1995-221999 19950830
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1997
AN 1997-068776 JAPIO
AB PROBLEM TO BE SOLVED: To obtain a sensitive material excellent in optical characteristics and dimensional stability, less liable to curl and excellent in handleability by using a **syndiotactic polystyrene** substrate and **heat-treating** it in a specified temperature range for a specified time before imparting an undercoat layer.
SOLUTION: A **syndiotactic polystyrene** substrate is used

and **heat-treated** in the temperature range from 40°C to the glass transition temperature (Tg °C) for 0.1-1,500hr before imparting an

undercoat layer. The substrate is a film based on syndiotactic polystyrene and its stereo-regular structure chiefly has a syndiotactic structure, that is, a steric structure in which phenyl groups or substd. phenyl groups as side chains are alternately positioned in the opposite directions to the principal chain consisting of carbon - carbon bonds. The film is made of a styrene polymer whose principal chain is chiefly a racemic chain or a compsn. containing the polymer.
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L2 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:256863 CAPLUS
DOCUMENT NUMBER: 126:244793
TITLE: Silver halide photographic films containing heat treated supports
INVENTOR(S): Meji, Iku; Shoji, Takehiko
PATENT ASSIGNEE(S): Konishiroku Photo Ind, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09050094	A2	19970218	JP 1995-204490	19950810

PRIORITY APPLN. INFO.: JP 1995-204490 19950810
AB Claimed photog. films comprise polymer supports heat treated at temperature higher than (Tg + 30°) (Tg; glass transition temperature) and cooled from (Tg + 30)° to (Tg + 5)° in 2-1000 s before coating emulsion layers. Resulting films prevent curling.

L2 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:32407 CAPLUS
DOCUMENT NUMBER: 120:32407
TITLE: Manufacture of styrenic polymer moldings with improved properties
INVENTOR(S): Uchida, Takaaki; Takebe, Tomoaki; Funaki, Keisuke; Yamasaki, Komei
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 531705	A2	19930317	EP 1992-113246	19920804
EP 531705	A3	19930505		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
JP 05043622	A2	19930223	JP 1991-200401	19910809
JP 3124323	B2	20010115		
JP 05104617	A2	19930427	JP 1991-266419	19911015
JP 3027451	B2	20000404		
US 5357014	A	19941018	US 1992-923475	19920803

PRIORITY APPLN. INFO.: JP 1991-200401 A 19910809
JP 1991-266419 A 19911015
OTHER SOURCE(S): MARPAT 120:32407
AB Moldings comprising styrenic polymers having a high degree of

syndiotacticity, a crystallinity of >2.5%, a spherulite radius of <10 μm, and haze of <5%, are manufactured by melting a nonoriented preform having crystallinity of <20%, cooling, heating at 140-180°, and thermoforming or orientation at an expansion ratio by area of >1.2 and at 120-260°. The moldings exhibit good solvent and heat resistance, and transparency, and are useful for food packaging and medical containers. Melt-extruded syndiotactic polystyrene sheet was heated at 155° for 10 min to give a molding having crystallinity 43%, haze 0.8% and heat-deformation temperature 175°.

=> d l2 7 hit

L2 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ST styrene polymer molding heat treatment; **syndiotactic polystyrene** molding **heat treatment**; transparent styrene polymer molding; thermoforming syndiotactic polystyrene

=> d his

(FILE 'HOME' ENTERED AT 16:24:41 ON 21 JUN 2004)
SET ABBR ON PERM
SET PLURALS ON PERM

FILE 'USPATFULL, USPAT2, JAPIO, CAPLUS' ENTERED AT 16:25:07 ON 21 JUN 2004
L1 19 S SYNDIOTACTIC?(1W)(STYRENE OR VINYL AROMATIC OR POLYSTYRENE) A
L2 7 S (SYNDIOTACTIC?(1W)(STYRENE OR VINYL AROMATIC OR POLYSTYRENE))

=> s ((syndiotactic?(1w)(styrene or vinyl aromatic or polystyrene))(15w)(heat(1w)treat?)
UNMATCHED LEFT PARENTHESIS '((SYNDIOTAC'
The number of right parentheses in a query must be equal to the number of left parentheses.

=> s (syndiotactic?(1w)(styrene or vinyl aromatic or polystyrene))(15w)(heat(1w)treat?)
L3 14 (SYNDIOTACTIC?(1W)(STYRENE OR VINYL AROMATIC OR POLYSTYRENE))(15W)(HEAT(1W) TREAT?)

=> d l3 1-14 ibib abs

L3 ANSWER 1 OF 14 USPATFULL on STN

ACCESSION NUMBER:	2004:92537 USPATFULL			
TITLE:	Multilayered film and near-infrared-ray reflection film			
INVENTOR(S):	Oya, Taro, Kanagawa, JAPAN			
	Murooka, Hirofumi, Kanagawa, JAPAN			
	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004069977	A1	20040415	
APPLICATION INFO.:	US 2003-432716	A1	20030923	(10)
	WO 2001-JP10239		20011122	
	NUMBER		DATE	
PRIORITY INFORMATION:	JP 2000-359135		20001127	
	JP 2000-359136		20001127	
DOCUMENT TYPE:	Utility			
FILE SEGMENT:	APPLICATION			
LEGAL REPRESENTATIVE:	SUGHRUE MION, PLLC, 2100 PENNSYLVANIA AVENUE, N.W., SUITE 800, WASHINGTON, DC, 20037			
NUMBER OF CLAIMS:	19			

EXEMPLARY CLAIM: 1
LINE COUNT: 1159
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A multilayer film which comprises a first layer comprising a polyethylene-2,6-naphthalene dicarboxylate and a second layer comprising a thermoplastic resin having a lower refractive index than the polyethylene-2,6-naphthalene dicarboxylate constituting the first layer, wherein:

the first and second layers each having a thickness of 0.05 μm to 0.3 μm are laminated alternately so as to form a laminate comprising at least 11 layers,

at least either the first layers or the second layers differ in thickness,

a value obtained by dividing the thickness of a layer with a maximum thickness by the thickness of a layer with a minimum thickness is not smaller than 1.2, and

at least either the laminated first layers or the second layers are stretched at least in one direction.

The multilayer film reflects light of given wavelength range selectively and widely. Hence, the film can prevent malfunctions in peripheral devices caused by broadband near infrared light radiated from a display surface of a plasma display, is inexpensive, has a high light transmittance, and is used for a front panel.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 2 OF 14 USPATFULL on STN
ACCESSION NUMBER: 2001:40187 USPATFULL
TITLE: Photothermographic material
INVENTOR(S): Katoh, Kazunobu, Kanagawa, Japan
Sakai, Minoru, Kanagawa, Japan
Arai, Tsutomu, Kanagawa, Japan
Hashimoto, Kiyokazu, Kanagawa, Japan
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Kanagawa, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6203972	B1	20010320	
APPLICATION INFO.:	US 1997-845370		19970424	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1996-130848	19960426
	JP 1996-132834	19960430
	JP 1996-132836	19960430
	JP 1996-132840	19960430
	JP 1996-132841	19960430
	JP 1996-304011	19961030
	JP 1996-358412	19961228

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Chea, Thorl
NUMBER OF CLAIMS: 27
EXEMPLARY CLAIM: 1
LINE COUNT: 3556
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A photothermographic material has a support bearing a photosensitive layer containing an organic silver salt, a photosensitive silver halide,

a reducing agent, and a ultrahigh contrast promoting agent. The support is a plastic film having a Tg of at least 90° C. Better results are obtained when the support experiences a dimensional change of up to 0.04% when heated at 115° C. for 30 seconds. Preferably, a conductive polymer layer is provided typically as an outermost layer, and an outermost layer has a Bekk smoothness of up to 4,000 seconds, typically a back layer has a Bekk smoothness of up to 4,000 seconds. The photothermographic material has improved dimensional stability and produces ultrahigh contrast images with high Dmax.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 3 OF 14 USPATFULL on STN

ACCESSION NUMBER:	2001:25961 USPATFULL
TITLE:	Extended polymer compostion derived from blends of elastomers and syndiotactic polystyrene
INVENTOR(S):	Wang, Xiaorong, Akron, OH, United States Luo, Xiao-Liang, Akron, OH, United States Clark, Frank J., Massillon, OH, United States Takeichi, Hideo, Akron, OH, United States Hall, James E., Mogadore, OH, United States Matsuse, Takahiro, Kodaira, Japan Mashita, Naruhiko, Kodaira, Japan Toyosawa, Shinichi, Tokorozawa, Japan
PATENT ASSIGNEE(S):	Bridgestone Corporation, Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6191197	B1	20010220	
APPLICATION INFO.:	US 1996-710828		19960923	(8)

DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Hoke, Veronica P.
LEGAL REPRESENTATIVE:	Burleson, David G., Skerry, Ann M.
NUMBER OF CLAIMS:	28
EXEMPLARY CLAIM:	26
LINE COUNT:	798

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB There are disclosed a gel or polymer composition which comprises 100 parts by weight of a polymer blend component comprising 1 to 90% by weight of a poly(vinyl aromatic hydrocarbon) polymer having a syndiotactic configuration and 99 to 10% by weight of a rubbery elastomer and at least 30 parts by weight of an extender oil or a low molecular weight organic component. These gel compositions have super soft properties, heat resistance, and/or damping properties.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 4 OF 14 USPATFULL on STN

ACCESSION NUMBER:	96:43472 USPATFULL
TITLE:	Resin laminate containing syndiotactic styrene-based polymer
INVENTOR(S):	Yamasaki, Komei, Sodegaura, Japan Funaki, Keisuke, Ichihara, Japan
PATENT ASSIGNEE(S):	Idemitsu Kosan Co, Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5518817		19960521	
APPLICATION INFO.:	US 1994-272627		19940711	(8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1992-938501, filed on 31 Aug 1992, now abandoned which is a continuation of Ser.			

No. US 1991-641939, filed on 16 Jan 1991, now abandoned which is a division of Ser. No. US 1989-327815, filed on 23 Mar 1989, now patented, Pat. No. US 5004649

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-89141	19880413
	JP 1988-297221	19881126

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Nakarani, D. S.
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 10
EXEMPLARY CLAIM: 1
LINE COUNT: 1072
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A resin laminate comprising layer of styrene-based polymer having mainly syndiotactic configuration and a thermoplastic resin layer, a metallized laminate comprising a layer of the styrene-based polymer described above and a metal layer, and process for producing these laminates are disclosed. In the laminate, the styrene-based polymer layer and the thermoplastic resin layer may be biaxially stretched.

The laminates are expected to be utilized for electrostatic capacitors, hot stamping foils, flexible printed circuit board substrates, food wrapping films, and other functional films including magnetic tapes, and ornament films.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 5 OF 14 USPATFULL on STN
ACCESSION NUMBER: 96:19192 USPATFULL
TITLE: Process for production of styrene-based polymer moldings
INVENTOR(S): Nakano, Akikazu, Ichihara, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5496919		19960305
APPLICATION INFO.:	US 1993-116066		19930902 (8)

RELATED APPLN. INFO.: Division of Ser. No. US 1992-960577, filed on 13 Oct 1992, now patented, Pat. No. US 5270442, issued on 14 Dec 1993 which is a continuation of Ser. No. US 1991-665930, filed on 5 Mar 1991, now abandoned which is a continuation of Ser. No. US 1988-286372, filed on 19 Dec 1988, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-3846	19880113

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Teskin, Fred
LEGAL REPRESENTATIVE: Frishauf, Holtz, Goodman, Langer & Chick
NUMBER OF CLAIMS: 14
EXEMPLARY CLAIM: 1
LINE COUNT: 429
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A process of producing a styrene polymer molding which comprises heat treating a molding of a crystalline styrene polymer having mainly a syndiotactic configuration and having a crystallinity of at least 10% as determined by X-ray diffraction analysis. The heat treating is carried

out at a temperature of 150°to 250° C. for 20 seconds to 90 minutes.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 6 OF 14 USPATFULL on STN

ACCESSION NUMBER:	94:108954 USPATFULL
TITLE:	Styrene-based polymer moldings and process for production thereof
INVENTOR(S):	Funaki, Keisuke, Ichihara, Japan Yamasaki, Komei, Sodegaura, Japan
PATENT ASSIGNEE(S):	Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5373031		19941213
APPLICATION INFO.:	US 1993-123227		19930920 (8)

RELATED APPLN. INFO.: Division of Ser. No. US 1993-44096, filed on 8 Mar 1993, now patented, Pat. No. US 5286762 which is a continuation of Ser. No. US 1991-642141, filed on 15 Jan 1991, now abandoned which is a continuation-in-part of Ser. No. US 1989-378384, filed on 10 Jul 1989, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-182825	19880723

DOCUMENT TYPE:	Utility
FILE SEGMENT:	Granted
PRIMARY EXAMINER:	Berman, Susan W.
LEGAL REPRESENTATIVE:	Oblon, Spivak, McClelland, Maier, & Neustadt
NUMBER OF CLAIMS:	11
EXEMPLARY CLAIM:	1
LINE COUNT:	559

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A styrene-based polymer molding is obtained molding a styrene-based polymer having mainly syndiotactic configuration and then irradiating the molding thus obtained with electron rays. This molding is excellent in heat resistance and further inexpensive. Thus the molding is useful as a material required to have high heat resistance, such as a structural material, a food container material, a food wrapping material or an electric or electronic part material, particularly as an electric or electronic part material, because it is excellent in soldering resistance.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 7 OF 14 USPATFULL on STN

ACCESSION NUMBER:	94:13559 USPATFULL
TITLE:	Styrene-based polymer moldings and process for production thereof
INVENTOR(S):	Funaki, Keisuke, Ichihara, Japan Yamasaki, Komei, Sodegaura, Japan
PATENT ASSIGNEE(S):	Idemitsu Kosan Company Limited, Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5286762		19940215
APPLICATION INFO.:	US 1993-44096		19930308 (8)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1991-642141, filed on 15 Jan 1991, now abandoned which is a continuation-in-part of Ser. No. US 1989-378384, filed on 10 Jul 1989, now

abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-182825	19880723

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Berman, Susan
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt
NUMBER OF CLAIMS: 24
EXEMPLARY CLAIM: 1
LINE COUNT: 575
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A styrene-based polymer molding is obtained by molding a styrene-based polymer having mainly syndiotactic configuration and then irradiating the molding thus obtained with electron rays. This molding is excellent in heat resistance and further inexpensive. Thus the molding is useful as a material required to have high heat resistance, such as a structural material, a food container material, a food wrapping material or an electric or electronic part material, particularly as an electric or electronic part material, because it is excellent in soldering resistance.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 8 OF 14 USPATFULL on STN
ACCESSION NUMBER: 93:105085 USPATFULL
TITLE: Styrene-based polymer moldings
INVENTOR(S): Nakano, Akikazu, Ichihara, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5270442		19931214
APPLICATION INFO.:	US 1992-960577		19921013 (7)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1991-665930, filed on 5 Mar 1991, now abandoned which is a continuation of Ser. No. US 1988-286372, filed on 19 Dec 1988, now abandoned

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-3846	19880113

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Teskin, Fred
LEGAL REPRESENTATIVE: Frishauf, Holtz, Goodman & Woodward
NUMBER OF CLAIMS: 17
EXEMPLARY CLAIM: 1
LINE COUNT: 425
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Styrene-based polymer moldings with a crystallinity of at least 20% obtained by subjecting moldings of crystalline styrene-based polymers having mainly syndiotactic configuration to heat treatment at a temperature of 120° to 270° C. These moldings are excellent in physical properties such as heat resistance and chemical resistance, and thus are expected to find various applications, for example, in general construction materials, electric or electronic devices, and car parts.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 9 OF 14 USPATFULL on STN
ACCESSION NUMBER: 91:26524 USPATFULL

TITLE: Resin laminates and a process for production thereof
INVENTOR(S): Yamasaki, Komei, Sodegaura, Japan
Funaki, Keisuke, Ichihara, Japan
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5004649		19910402
APPLICATION INFO.:	US 1989-327815		19890323 (7)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1988-89141	19880413
	JP 1988-297221	19881126

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Herbert, Thomas J.
LEGAL REPRESENTATIVE: Frishauf, Holtz, Goodman & Woodward
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
LINE COUNT: 1027
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A resin laminate comprising a layer of styrene-based polymer having mainly syndiotactic configuration and a thermoplastic resin layer, a metallized laminate comprising a layer of the styrene-based polymer described above and a metal layer, and process for producing these laminates are disclosed. In the laminate, the styrene-based polymer layer and the thermoplastic resin layer may be biaxially stretched.

The laminates are expected to be utilized for electrostatic capacitors, hot stamping foils, flexible printed circuit board substrates, food wrapping films, and other functional films including magnetic tapes, and ornament films.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 10 OF 14 JAPIO (C) 2004 JPO on STN
ACCESSION NUMBER: 1997-068776 JAPIO
TITLE: SILVER HALIDE PHOTOGRAPHIC SENSITIVE MATERIAL
INVENTOR: SHIOZAKI SHIGERU
PATENT ASSIGNEE(S): KONICA CORP
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 09068776	A	19970311	Heisei	G03C001-795

APPLICATION INFORMATION

STN FORMAT:	JP 1995-221999	19950830
ORIGINAL:	JP07221999	Heisei

PRIORITY APPLN. INFO.: JP 1995-221999 19950830
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1997
AN 1997-068776 JAPIO
AB PROBLEM TO BE SOLVED: To obtain a sensitive material excellent in optical characteristics and dimensional stability, less liable to curl and excellent in handleability by using a **syndiotactic polystyrene** substrate and **heat-treating** it in a specified temperature range for a specified time before imparting an undercoat layer.
SOLUTION: A **syndiotactic polystyrene** substrate is used and **heat-treated** in the temperature range from 40°C to

the glass transition temperature (Tg °C) for 0.1-1,500hr before imparting an
undercoat layer. The substrate is a film based on syndiotactic polystyrene and its stereo-regular structure chiefly has a syndiotactic structure, that is, a steric structure in which phenyl groups or substd. phenyl groups as side chains are alternately positioned in the opposite directions to the principal chain consisting of carbon - carbon bonds. The film is made of a styrene polymer whose principal chain is chiefly a racemic chain or a compsn. containing the polymer.
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L3 ANSWER 11 OF 14 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:256863 CAPLUS
DOCUMENT NUMBER: 126:244793
TITLE: Silver halide photographic films containing heat treated supports
INVENTOR(S): Meji, Iku; Shoji, Takehiko
PATENT ASSIGNEE(S): Konishiroku Photo Ind, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09050094	A2	19970218	JP 1995-204490	19950810

PRIORITY APPLN. INFO.: JP 1995-204490 19950810
AB Claimed photog. films comprise polymer supports heat treated at temperature higher than (Tg + 30°) (Tg; glass transition temperature) and cooled from (Tg + 30)° to (Tg + 5)° in 2-1000 s before coating emulsion layers. Resulting films prevent curling.

L3 ANSWER 12 OF 14 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:32407 CAPLUS
DOCUMENT NUMBER: 120:32407
TITLE: Manufacture of styrenic polymer moldings with improved properties
INVENTOR(S): Uchida, Takaaki; Takebe, Tomoaki; Funaki, Keisuke; Yamasaki, Komei
PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 531705	A2	19930317	EP 1992-113246	19920804
EP 531705	A3	19930505		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
JP 05043622	A2	19930223	JP 1991-200401	19910809
JP 3124323	B2	20010115		
JP 05104617	A2	19930427	JP 1991-266419	19911015
JP 3027451	B2	20000404		
US 5357014	A	19941018	US 1992-923475	19920803

PRIORITY APPLN. INFO.: JP 1991-200401 A 19910809
JP 1991-266419 A 19911015
OTHER SOURCE(S): MARPAT 120:32407
AB Moldings comprising styrenic polymers having a high degree of syndiotacticity, a crystallinity of >2.5%, a spherulite radius of <10

μm, and haze of <5%, are manufactured by melting a nonoriented preform having crystallinity of <20%, cooling, heating at 140-180°, and thermoforming or orientation at an expansion ratio by area of >1.2 and at 120-260°. The moldings exhibit good solvent and heat resistance, and transparency, and are useful for food packaging and medical containers. Melt-extruded syndiotactic polystyrene sheet was heated at 155° for 10 min to give a molding having crystallinity 43%, haze 0.8% and heat-deformation temperature 175°.

L3 ANSWER 13 OF 14 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1993:23429 CAPLUS
DOCUMENT NUMBER: 118:23429
TITLE: Paper-styrenic polymer laminate
INVENTOR(S): Arai, Yosuke; Oki, Yuichi; Maemura, Eiji; Funaki, Keisuke
PATENT ASSIGNEE(S): Idemitsu Petrochemical Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 502330	A2	19920909	EP 1992-101869	19920205
EP 502330	A3	19930203		
EP 502330	B1	19961218		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
JP 04255350	A2	19920910	JP 1991-36565	19910207
JP 3080671	B2	20000828		
AT 146402	E	19970115	AT 1992-101869	19920205
CA 2060734	AA	19920808	CA 1992-2060734	19920206
US 5318839	A	19940607	US 1992-831840	19920206

PRIORITY APPLN. INFO.: JP 1991-36565 A 19910207

AB The laminate, excellent in heat resistance, tearability, dead foldability and gloss, comprises a layer of styrene polymer (high syndiotacticity; crystallization degree ≥25%) and a layer of paper. Thus, **syndiotactic** (97%) **polystyrene** (number-average mol. weight 400,000) biaxially oriented film (122 μm; crystallization degree after **heat treatment** at 260° 55%) was laminated with paper of basis weight 300 g/m2, using polyurethane adhesive, to show heat resistance (230° for 3 min.) unchanged, boiling H2O resistance unchanged, tearability comparable to paper, and dead foldability comparable to cellophane.

L3 ANSWER 14 OF 14 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1990:516699 CAPLUS
DOCUMENT NUMBER: 113:116699
TITLE: Manufacture and uses of saponified ethylene-vinyl acetate copolymer laminates
INVENTOR(S): Taichi, Negi; Akira, Mochizuki; Shiro, Nagata; Komei, Yamasaki; Keisuke, Funaki; Takashi, Sumitomo
PATENT ASSIGNEE(S): Kuraray Co., Ltd., Japan; Idemitsu Petrochemical Co., Ltd.
SOURCE: Eur. Pat. Appl., 27 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

EP 363895	A2	19900418	EP 1989-118794	19891010
EP 363895	A3	19910116		
EP 363895	B1	19970827		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
JP 02113047	A2	19900425	JP 1988-266898	19881021
JP 2651410	B2	19970910		
US 5089353	A	19920218	US 1989-413997	19890928
CA 2000036	AA	19900414	CA 1989-2000036	19891002
CA 2000036	C	19991207		
AU 8942622	A1	19900426	AU 1989-42622	19891005
AU 626588	B2	19920806		
EP 603519	A2	19940629	EP 1993-118019	19891010
EP 603519	A3	19951206		
EP 603519	B1	19970917		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
JP 02192942	A2	19900730	JP 1989-267190	19891012
JP 2647514	B2	19970827		
US 5346950	A	19940913	US 1993-140886	19931025

PRIORITY APPLN. INFO.:

JP 1988-260235	A	19881014
JP 1988-266898	A	19881021
US 1989-413997	A3	19890928
EP 1989-118794	A3	19891010
US 1991-794582	A1	19911119

AB A multilayer material, having gas barrier properties and excellent heat resistance, and useful for long-term storage of food, comprises a laminate of ethylene (I) - vinyl acetate copolymer (II) and a syndiotactic styrene-based polymer in 5:95 - 95:5 ratio. Thus, saponified II (containing 32% I, 99.4% hydrolyzed) was corextruded with maleic hydride - modified low-d. polyethylene adhesive and **syndiotactic polystyrene** to form a sheet, which was heated at 270°, pressure molded, and **heat treated** at 220° for 10 s to give a container, which was filled with H2O and heated at 240° for 30 min. The container showed O2 permeability rate 0.5 mL-20 μm/m2-day-atm, breakage resistance (after being dropped to a concrete floor at 5° from the height of 1 m) 10 times, and appearance good, compared with > 102, 3, and good, resp., for a similar containger without II.

=> d l3 7 hit

L3 ANSWER 7 OF 14 USPATFULL on STN

DETD The same procedure was carried out as in Example 3 except for using the **syndiotactic** (**styrene**-p-methylstyrene) copolymer obtained in the above Reference Example B, changing the **heat treatment** temperature to 240° C. and changing the absorption dose of an electron ray to 20 Mrad. The results are shown in Table 1.

=> d l3 3 hit

L3 ANSWER 3 OF 14 USPATFULL on STN

DETD The gels containing oil extended thermoplastic elastomer and **syndiotactic polystyrene** compositions of the present invention of this invention can be manufactured by mixing and dynamically **heat-treating** the components described above, namely, by melt-mixing. As for the mixing equipment, any conventional, generally known equipment such as an open-type mixing roll, closed-type Banbury mixer, extruding machine, kneader, continuous mixer, etc., is acceptable. The closed-type is preferable, and mixing in an inactive gas environment, such as nitrogen or carbon dioxide, is also preferable. The preferred method of mixing and kneading the components of this invention is to mix and knead all the extender, such as oil,

with the polymer components for 1-10 minutes, then to add other components, such as fillers, and mix again for 1-30 minutes.

=> log y

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	183.53	183.74

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-8.32	-8.32

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